CLAIMS

1. A method comprising:

exposing a first surface of a first component and a second surface of a second component to plasma; and

contacting first portions of the first surface with the second surface while leaving a second portion of the first surface, intervening the first portions of the first surface, free of contact with the second surface.

2. A method as in claim 1, the contacting step comprising contacting a plurality of first portions of the first portions of the first surface, each of the first portions including a second portion that remains free of contact with the second surface, between it and another first portion.

3. A method as in claim 2, wherein the first portions are polymeric.

4. A method as in claim 2, wherein the first portions are elastomeric.

5. A method as in claim 1, wherein the first surface is a contoured surface including a plurality of protrusions and intervening indentations and the contacting step involves contacting outward-facing surfaces of the protrusions with the second surface.

6. A method as in claim 5, wherein the second surface is essentially flat.

7. A method as in claim 1, further comprising forming a seal between the first portions and the second surface.

8. A method as in claim 7, involving forming an irreversible seal between the first portions and the second surface.

9. A method as in claim 7, involving forming a seal between the first portions and the second surface that is impermeable to agents to which the first and second surfaces are resistant.

10. A method as in claim 1, wherein at least one of the first and second components is flexible.

11. A method as in claim 1, wherein at least one of the first and second components is polymeric.

12. A method as in claim 1, wherein at least one of the first and second components is elastomeric.

13. A method as in claim 1, the contacting step comprising defining, between the first surface and the second surface, a plurality of isolated, essentially parallel, elongate channels.

14. A method as in claim 13, wherein each of the channels has a length at least three times its width.

15. A method as in claim 13, wherein the plurality of channels comprises at least five channels.

16. A method comprising:

providing a sample chamber formed according to claim 1; and

positioning a source of electromagnetic radiation directed at the sample chamber and a detector of electromagnetic radiation positioned to detect electromagnetic radiation emanating from the sample chamber.

17. A method as in claim 16, comprising positioning the detector to detect electromagnetic radiation emitted by the emitter and passing through the sample chamber.

18. A method as in claim 17, wherein the detector is an electromagnetic absorption detector.

19. A method as in claim 17, wherein the detector is a diffraction pattern detector.

20. A method as in claim 16, further comprising providing a diffraction pattern detector positioned to detect a diffraction pattern resulting from interaction of the electromagnetic radiation and a sample in the sample chamber.

21. A method as in claim 16, further comprising providing a pump constructed and arranged to urge a sample through the chamber.

22. A method as in claim 21, wherein the pump is a physical pump.

23. A method as in claim 21, wherein the pump is an electroosmotic pump.

24. A method comprising:

joining a pre-oxidized polymeric surface to a second pre-oxidized surface; and

allowing the polymeric surface and the second surface to form a liquid-impermeable seal therebetween.

25. A method as in claim 24, comprising allowing the polymeric surface and the second surface to form a liquid-impermeable seal therebetween in the absence of auxiliary adhesive.

26. A method as in claim 24, further comprising pre-oxidizing the polymeric surface and the second surface by exposing the polymeric surface and the second surface to plasma.

27. A method as in claim 24, wherein the polymeric surface is a surface of a flexible article.

28. A method as in claim 24, wherein the polymeric surface is a surface of an elastomeric article.

29. A method as in claim 24, wherein the joining step comprises joining the first portions of the polymeric surface to the second surface while leaving a second portion of the polymeric surface, intervening the first portions of the polymeric surface, free of contact with the second surface.

30. A method as in claim 24, the joining step comprising contacting first portions of the second surface with the polymeric surface while leaving a second portion of the second surface, intervening the first portions of the second surface, free of contact with the polymeric surface.

31. A method as in claim 24, wherein the second surface is polymeric.

32. A method as in claim 24, wherein the second surface is metal.

33. A method comprising:

forming a siloxane bond between a first, conformable surface and a second surface.

34. A method as in claim 33, comprising forming of the siloxane bond in the absence of auxiliary adhesive.

35. A method as in claim 33, further comprising exposing the first surface and the second surface to plasma, then forming the siloxane bond.

36. A method as in claim 33, wherein the first surface is polymeric.

37. A method as in claim 33, wherein the first surface is flexible.

38. A method as in claim 33, wherein the first surface is elastomeric.

39. A method as in claim 33, wherein the second surface is polymeric.

40. A method as in claim 33, the forming step involving contacting first portions on the first surface with the second surface while leaving a second portion of the first surface, intervening the first portions of the first surface, free of contact with the second surface.

41. A method as in claim 33, the forming step involving contacting first portions on the second surface with the first surface while leaving a second portion of the second surface, intervening the first portions of the second surface, free of contact with the first surface.

42. A method as in claim 33, wherein the second surface is metal.

43. A method comprising:

applying a polymeric surface to a second surface; and

in the absence of auxiliary adhesive and at a temperature of between about 16 °C and about 27 °C, allowing the polymeric surface and the second surface to bond to form a liquid-impermeable seal therebetween.

44. A method as in claim 43, further comprising pre-oxidizing the polymeric surface and the second surface prior to the applying step.

45. A method as in claim 43, further comprising exposing the polymeric surface and the second surface to plasma prior to the applying step.

46. A method as in claim 43, wherein the second surface is polymeric.

47. A method as in claim 43, wherein the first surface is flexible.

48. A method as in claim 43, wherein the first surface is elastomeric.

49. A method as in claim 43, the applying step comprising contacting first portions on the first surface with the second surface while leaving a second portion of the first surface, intervening the first portions of the first surface, free of contact with the second surface.

50. A method as in claim 43, the applying step comprising contacting first portions on the second surface with the first surface while leaving a second portion of the second surface, intervening the first portions of the second surface, free of contact with the first surface.

51. A method as in claim 43, wherein the second surface is metal.

52. An article comprising:

a polymeric component having a surface bonded to a surface of a second component in the absence of auxiliary adhesive thereby defining a liquid-impermeable seal therebetween.

53. An article as in claim 52, wherein the surface of the polymeric component is bonded to the surface of the second component via siloxane bonding.

54. An article as in claim 52, wherein first portions of the surface of the polymeric component are bonded to the surface of the second component while a second portion of the surface of the polymeric component, intervening the first portions of the surface of the polymeric component, is free of contact with the surface of the second component.

55. An article as in claim 52, wherein first portions of the surface of the second component are bonded to the surface of the polymeric component while a second portion of the surface of the second component, intervening the first portions of the surface of the second component, is free of contact with the surface of the polymeric component.

56. An article as in claim 52, wherein the surface of the second component is metal.

57. A method comprising:

inducing electroosmotic fluid flow in a channel, an interior surface of which is defined at least in part by polymeric material.

58. A system comprising:

a channel, an interior surface of which is defined at least in part by polymeric material; and

electrical circuitry positioned to apply an electrical field along the channel.

59. A method comprising:

exposing a surface of a first article to a pretreatment step, absent auxiliary adhesive, that both promotes bonding of the surface to another surface and primes the first surface for a predetermined chemical modification;

defining a channel between the first article and a second article by joining portions of the surface of the first article to portions of a surface of the second article and allowing joined portions of the first and second articles to bond to form a liquid-impermeable seal therebetween promoted by the pretreatment step; and

effecting the predetermined chemical modification at an interior surface of the channel primed by the pretreatment step.

60. A method comprising:

exposing a surface of a first article to a pretreatment step, absent auxiliary adhesive, that both promotes bonding of the surface to another surface and primes the first surface for enhanced fluid flow against it;

defining a channel between the first article and a second article by joining portions of the surface of the first article to portions of a surface of the second article and allowing joined portions of the first and second articles to bond to form a liquid-impermeable seal therebetween promoted by the pretreatment step; and

urging fluid flow in the channel at a first fluid flow rate under conditions at which, in the absence of the pretreatment step, the fluid would flow at a second fluid flow rate less than the first rate.

61. A method as in claim 5, comprising forming a plasma-activated seal in the absence of auxiliary adhesive.